

## **EXPT: 3 UDP CLIENT-SERVER COMMUNICATION USING SOCKET PROGRAMMING IN PYTHON**

### **Introduction:**

UDP (User Datagram Protocol) is a connectionless protocol that allows sending messages (datagrams) between client and server without establishing a connection. This experiment demonstrates a simple UDP client-server communication in Python.

### **Aim:**

Develop a simple UDP server and client using Python's socket module to exchange messages.

### **Algorithm:**

#### **1. Server:**

- o Create a UDP socket and bind it to an IP and port.
- o Wait for incoming messages.
- o Receive data, print it, and optionally send a reply.

#### **2. Client:**

- o Create a UDP socket.
- o Send message to server IP and port.
- o Receive reply from server and display it.

### **Code:**

#### **Server:**

```
import socket

sockfd = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)

print('UDP Socket Created')

sockfd.bind(('localhost', 55555))

print('Waiting for messages')

while True:

    data, addr = sockfd.recvfrom(1024)

    receivedMsg = data.decode()
```

```
print("Received message from", addr)
print("Message:", receivedMsg)

# Send the same message back to client
sockfd.sendto(data, addr)

print("Message reply sent to Client!")

choice = input("Do you want to continue (type y or n): ")

if choice == 'n':
    break

sockfd.close()
```

**Client:**

```
import socket

clientfd = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)

server_address = ('localhost', 55555)

name = input("Enter your message: ")

clientfd.sendto(name.encode(), server_address)

data, _ = clientfd.recvfrom(1024)

print("Message Received from Server:", data.decode())

clientfd.close()
```

**Output:**

**Server:**

```
Command Prompt - python s  X + ▾
Microsoft Windows [Version 10.0.26100.6584]
(c) Microsoft Corporation. All rights reserved.

C:\Users\angel>cd C:\Users\angel\OneDrive\Documents
C:\Users\angel\OneDrive\Documents>python server.py
Socket Created
Waiting for connections
Connected with ('127.0.0.1', 52581)
Message Received from Client: Hello
Message reply sent to Client!
Do you want to continue(type y or n):
n

C:\Users\angel\OneDrive\Documents>python server.py
UDP Socket Created
Waiting for messages
Received message from ('127.0.0.1', 57082)
Message: Hello
Message reply sent to Client!
Do you want to continue (type y or n):
```

### Client:

```
Command Prompt      X + ▾
Microsoft Windows [Version 10.0.26100.6584]
(c) Microsoft Corporation. All rights reserved.

C:\Users\angel>cd C:\Users\angel\OneDrive\Documents
C:\Users\angel\OneDrive\Documents>python client.py
Enter your message:Hello
Message Received from Server: Hello

C:\Users\angel\OneDrive\Documents>python client.py
Enter your message: Hello
Message Received from Server: Hello

C:\Users\angel\OneDrive\Documents>
```

**Result:** The UDP client successfully sent messages to the server, and the server received and replied to each message.